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PAPER ABSTRACT

BepiColombo is Europe's first mission to Mercury. A collaborative between ESA and the Japan Aerospace Exploration Agency (JAXA), executed under ESA leadership. The mission comprises two spacecraft: The Mercury Planetary Orbiter (MPO), built by ESA, and the Mercury Magnetospheric Orbiter (MMO), built by JAXA, they are dedicated to the detailed study of the planet and its magnetosphere respectively. The ESA orbiter payload comprises 11 instruments covering different scientific disciplines developed by several international teams. The launch of the MPO-MMO composite is planned for April 2018 on an Ariane 5 from Kourou. Approximately 6.5 years later, after two Venus and four Mercury flybys, the spacecraft will perform its final approach to Mercury arriving in 2024, and gather data during a 1-year nominal mission, with a possible 1-year extension. Science operations will be planned and coordinated by the BepiColombo Science Ground Segment (SGS) located in the European Space Astronomy Centre (ESAC) based in Madrid.

Throughout the development phase of the SGS decisions on which Commercial off-the-shelf (COTS) tool to use have been made and will continue to be made in the future. Evaluation of COTS tools has been carried out in each case, but largely without any guidance or best practice methodology. Evaluation of tools for Requirements Management and Bug and action tracking have been performed in the last five years. In this paper we explain the method that was chosen for the evaluation, the reasons why the method was chosen, what was good about it and how it can be improved and applied to any COTS evaluations that may take place in the future.

The paper will give the reader a good starting point to structure their own evaluation of COTS tools ultimately providing justification for choosing one tool over another and supporting decision making.

Introduction

Commercial off-the-shelf (COTS): software packages or solutions purchased to meet a need.

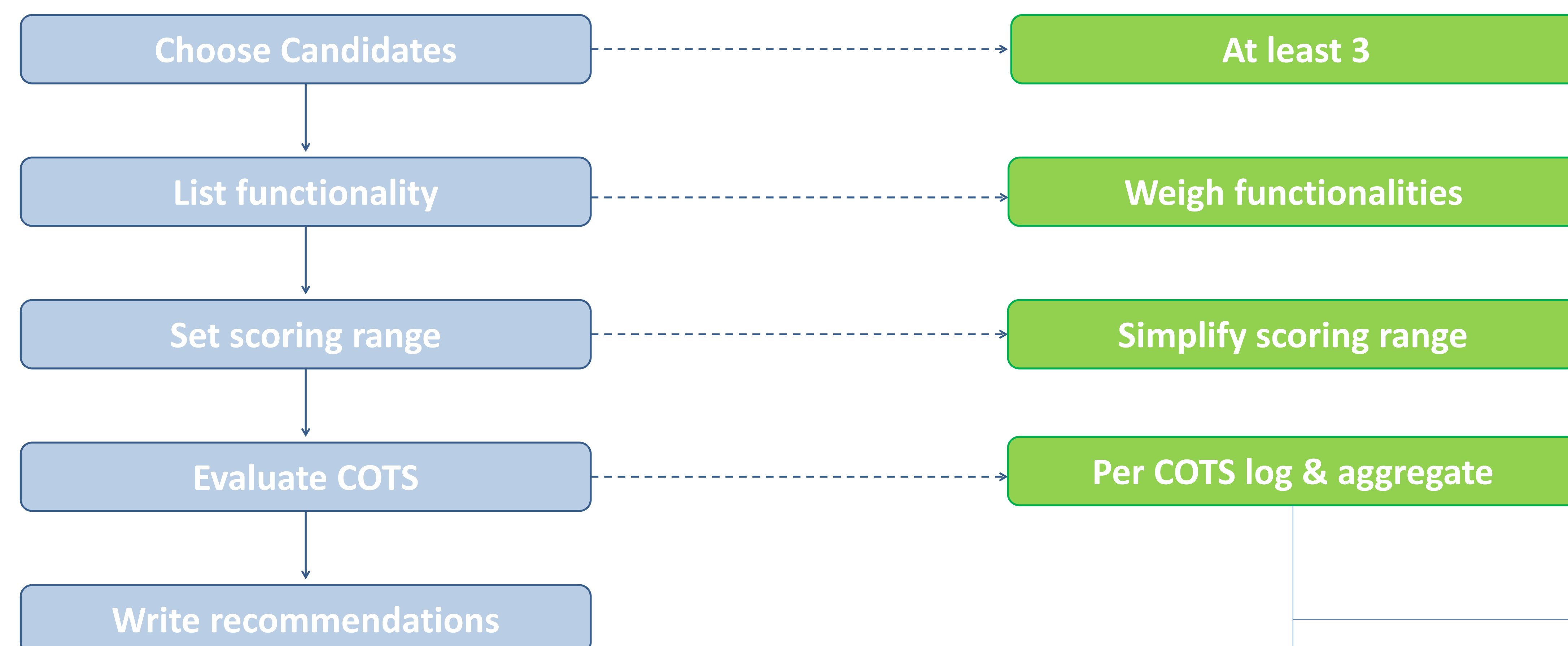
PROS

1. Many fit-for-purpose COTS candidates available in the market place.
2. Cost of a bespoke development may outweigh the benefit.
3. Risk that the bespoke product does not meet the needs.
4. On-going maintenance costs are with a vendor and not in-house.

CONS

1. Configuring chosen COTS with custom developments means in-house maintenance costs.
2. Dependency on the COTS vendor.
3. Complications when upgrading due to extensive customisation.

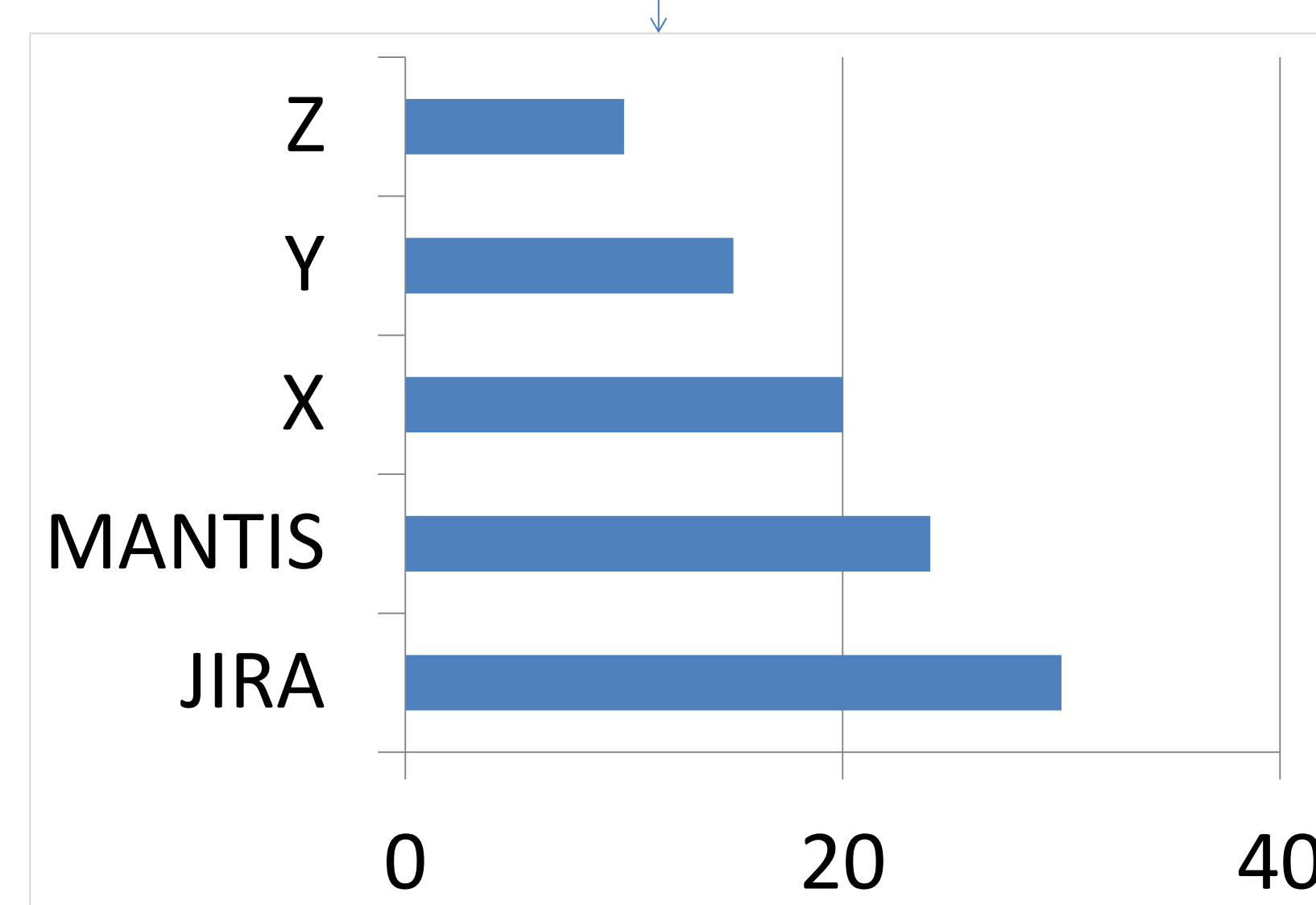
Evaluate



Weight	Functionality support
1	Nice to have
2	Somewhat important
3	Ideally present
4	Essential functionality

Score	Functionality support
0	No support
1	Minimally supported
2	Supported with workarounds
3	Fully supported

Improvements



Log results

Functionality	Description	Mantis	Score	Jira	Score
GENERAL USAGE					
Traceability	Is it possible to have full traceability between SIRD, SYS, SubSys, SW requirement artifacts?	Yes	5	Yes	5
Traceability reporting	Is it possible to create a report showing these traceability links?	Probably using PHP scripts since CSV export only provides very basic info	1	Yes through EXCEL export	3
Fields	Can custom fields be created and how easily?	Yes	5	Yes	5

Rank	Tool	Total Weighted Score
1	JIRA	30
2	MANTIS	24
3	X	20
4	Y	15
5	Z	10